



Rediscovery of *Oligodon catenatus* (Blyth, 1854) (Squamata: Colubridae) from India

Lalbiakzuala and *Hmar Tlawmte Lalremsanga

Developmental Biology and Herpetology Laboratory, Department of Zoology, Mizoram University, Aizawl 796004, Mizoram, INDIA

Abstract.—The poorly known Assam Kukri Snake, *Oligodon catenatus* (Blyth, 1854), in the *Oligodon dorsalis* group, is here reported from Mizoram State, northeastern India, based on a single male specimen. This report extends the distributional range of the species. This specimen is only the second one collected from India, and it is very important as the holotype of the species has been lost. A brief description of the new specimen is presented.

Keywords. Assam Kukri Snake, distribution, first record, Mizoram, moist deciduous forest, Tam Dil, wetland

Citation: Lalbiakzuala, Lalremsanga HT. 2020. Rediscovery of *Oligodon catenatus* (Blyth, 1854) (Squamata: Colubridae) from India. *Amphibian & Reptile Conservation* 14(3) [General Section]: 226-230 (e270).

Copyright: © 2020 Lalbiakzuala and Lalremsanga. This is an open access article distributed under the terms of the Creative Commons Attribution License [Attribution 4.0 International (CC BY 4.0): <https://creativecommons.org/licenses/by/4.0/>], which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. The official and authorized publication credit sources, which will be duly enforced, are as follows: official journal title *Amphibian & Reptile Conservation*; official journal website: *amphibian-reptile-conservation.org*.

Accepted: 18 November 2019; **Published:** 9 December 2020

Introduction

The Assam Kukri Snake, *Oligodon catenatus* (Blyth, 1854), is a poorly known species in India. The type specimen was collected from “Asám” (which currently spans seven states) in northeastern India by Blyth (Smith 1943), but has been lost from the Asiatic Society Museum, Kolkata (Sclater 1891). The distribution of this species includes Myanmar, Laos, Vietnam, China, and possibly Cambodia (Green 2010), and the species has been found at elevations of around 700–1,000 m asl (Zhao et al. 1998). While it has been considered rare since the day of its description (Sharma 2019), the species has not been reported from India in recent years. In Vietnam, it has been collected from evergreen secondary forest (Pham et al. 2014), but very little is known about its ecology (Gong et al. 2002). The nearest known distribution record outside of India is in Nam Tamai Valley near the Tibetan border, Kachin Hills, Myanmar (Smith 1943).

Oligodon catenatus had been a synonym of *O. eberhardti* (e.g., Zhao 2006a,b), but was recently removed from synonymy (see Ziegler et al. 2007; Thy and Nguyen 2012). *Oligodon catenatus* is very similar to, has been confused with, *O. eberhardti* (Thy and Nguyen 2012), but they differ by the absence of the loreal in *O. catenatus* (Pham et al. 2014). In fact, Vassilieva (2015) noted that the absence of a loreal

scale is rare among Kukri snakes. Among the 22 species of *Oligodon* known from Indo-China, this character is found only in three species: *O. catenatus* (Blyth 1854), *O. annamensis* (Leviton 1953), and *O. lacroixi* (Angel and Bourret 1933); and it is facultatively absent in both *O. mouhoti* (Boulenger 1914) and *O. macrurus* (Angel 1927). Before this current report, there had been no previous records of the species from Mizoram (Mathew 2007; Lalremsanga et al. 2011).

Methods

A single male specimen was found dead in a field, and collected on 4 June 2019 from a forest pathway near Tamdil National Wetland (23°44'20"N, 92°57'06"W; elevation 760 m asl), Aizawl District, Mizoram, 64 km E from Aizawl, the capital of Mizoram State, northeastern India. The specimen was fixed in 4% formalin, transferred to 70% ethanol, and deposited in the Departmental Museum of Zoology, Mizoram University, India (as specimen MZMU 1446). Measurements were taken with a slide caliper to the nearest 0.1 mm, except for snout-vent length (SVL) and tail length (TaL), which were measured with a ruler to the nearest 1 mm. The ventral scales were counted according to Dowling (1951), and dorsal scale rows are given at one head length behind the head, at mid-body, and at one head length before the vent. The terminal

Correspondence. *htlrsa@yahoo.co.in, bzachawngthu123@gmail.com

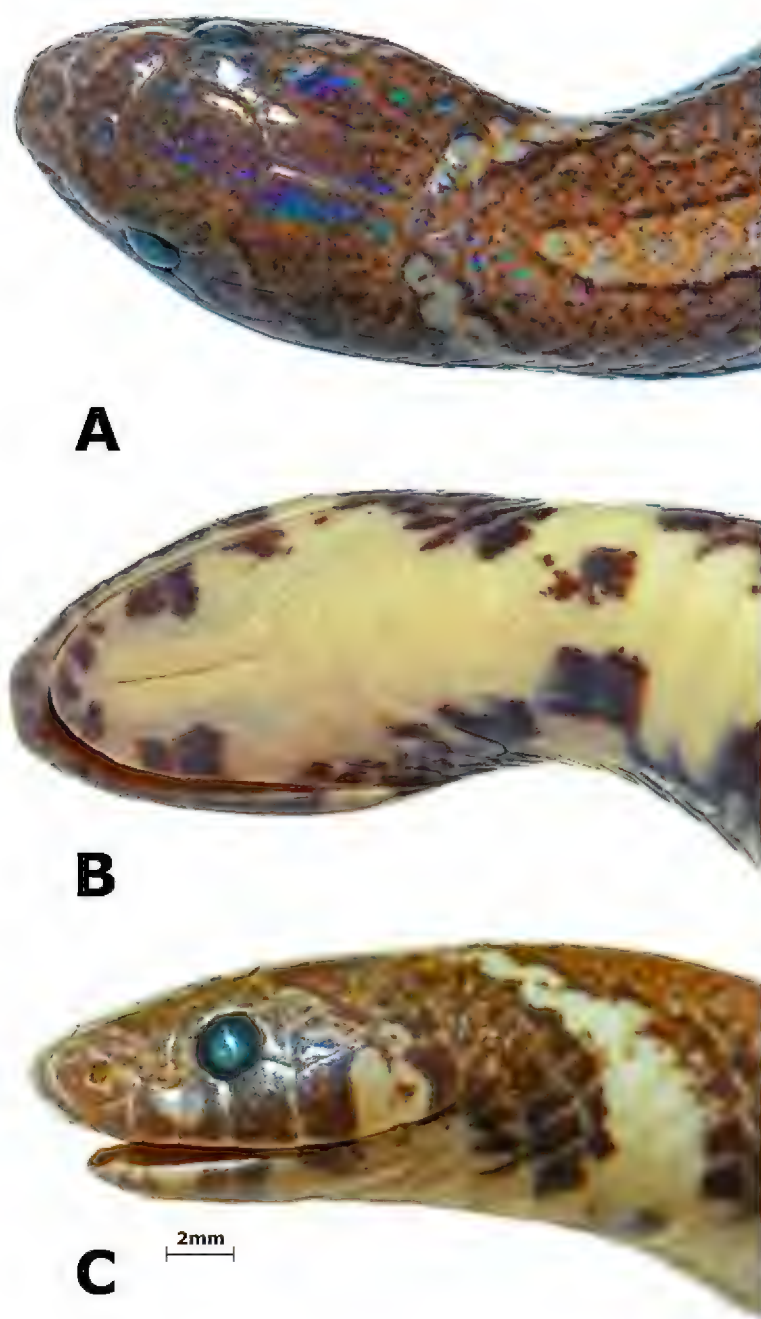


Fig. 1. Head of *Oligodon catenatus* in dorsal (A), ventral (B), and lateral (C) views. Photos by Lalbiakzuala, Melvin Selvan, and Nilanjan Mukherjee.

scute is excluded from the number of subcaudals. Morphometric characters and pholidosis measurements are given in Table 1.

Abbreviations. MZMU: Museum of Zoology Department, Mizoram University, Aizawl, India; DST-SERB: Department of Science and Technology, Science and Engineering Research Board, Government of India; SVL: snout-vent length; TaL: tail length; TL: total length; TaL/SVL: ratio tail length/snout-vent length; HL: head length; HW: head width; DSR: number of dorsal scale rows (at the three positions as described above); VEN: ventral scales; IF: infralabials; SL: supralabials; PosOc: postocular scale; PreOc: preocular scales; SC: subcaudal scales; ATem: anterior temporal scale; PTem: posterior temporal; LOR: loreal scale; SL2: number of supralabials touching eye; EYD: eye diameter; END: eye-nostril distance; WSN: width of snout; LSN: length of snout.

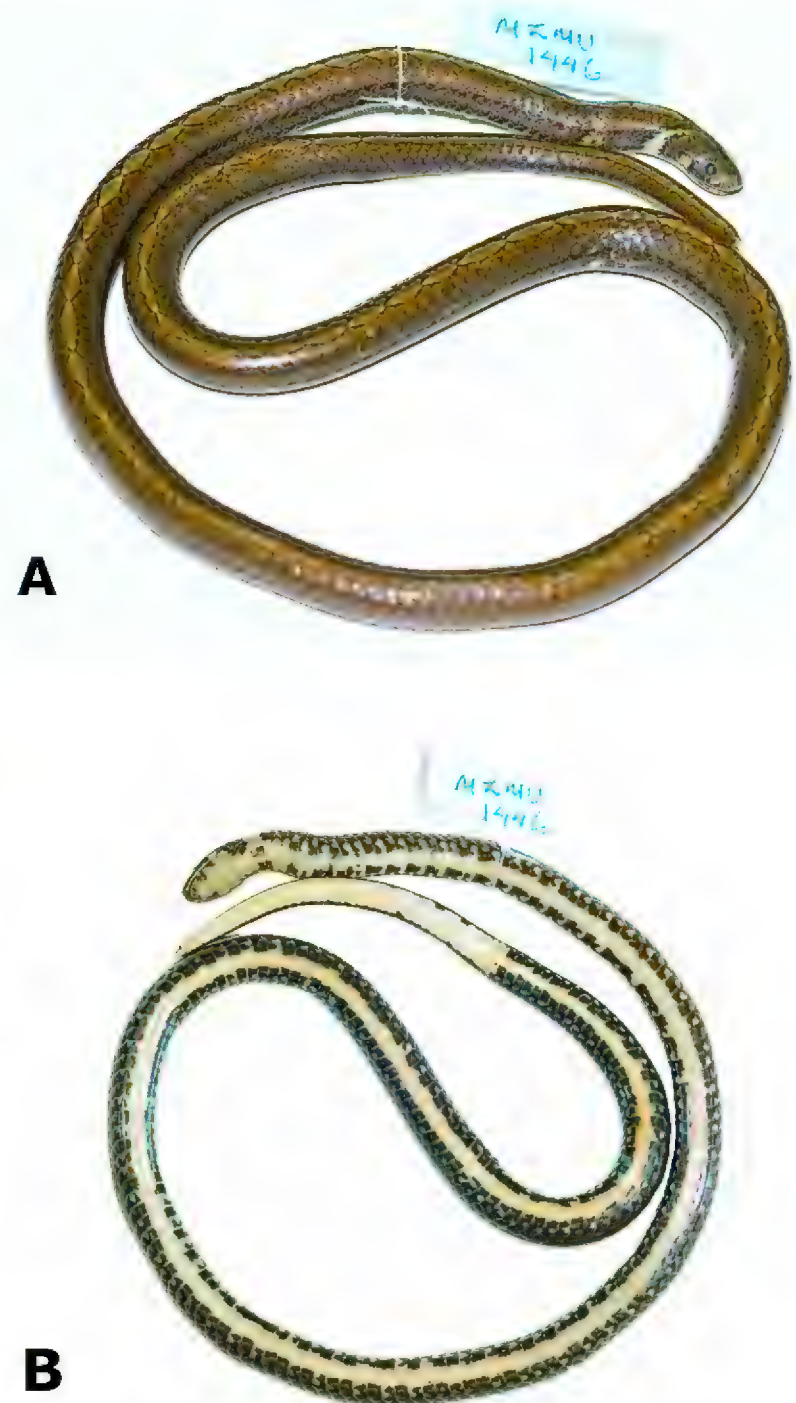


Fig. 2. The dorsal (A) and ventral (B) views of *Oligodon catenatus* in preservation. Photos by Lalbiakzuala, Melvin Selvan, and Nilanjan Mukherjee.

Results and Discussion

The specimen, an adult male, shows an injury ventrolaterally between the 8th and 9th ventral scales, and the opening reaches up to the middle of the ventral region. The body of the snake is cylindrical and it has a small, indistinct head (Fig. 1); small eyes with round pupil; nape with incomplete cross bar; dorsum (Fig. 2) with a chain of 62 continuous diamond-shaped vertebral patterns from the anterior neck region up to the vent, and continuing with a longitudinal stripe to tail-tip; in preservation, outer end of ventral shields with dark squarish spots; mid-ventral with plain pale lemon color from chin to tail tips; ventral tail roughly immaculate, and ends with pointed tip. The loreal scale is absent on both sides; 13 rows of dorsal scales at mid-body; anal shield divided; six supralabials with 3rd and 4th entering orbit on both sides, half of the posterior of 3rd supralabial to half of the anterior of 5th supralabial with marbled

Table 1. Morphometric and pholidosis data of *Oligodon catenatus* specimen found in India in 2019 (voucher number MZMU 1446). See text for abbreviations.

Attribute	State or value
Sex	Male
Collection locality	Tamdil National Wetland, Mizoram, India
Collectors	Lalremsanga and Lalbiakzuala
Date of collection	4 June 2019
EYD	1.96 mm
END	2.78 mm
WSN	3.53 mm
LSN	0.93 mm
HW	8.16 mm
HL	10.82 mm
TaL	64 mm
SVL	480 mm
TaL/SVL	0.13
VEN	203
DSR	13-13-13
IF	6
SL	6
SL2	3 rd and 4 th
ATem	1
PTem	2
PosOc	1
PreOc	1
LOR	Absent
SC	37

dark color, anterior part of the snout is mottled with dark patches; six infralabials; one anterior temporal; 37 paired subcaudals. This description agrees with those given by other workers, except for the ventrals here being 203 vs. 186–196 (Smith 1943) and 179–184 (Pham et al. 2014), but in agreement with the pooled sex ventral range 179–212 (Pauwels et al. 2002; Das 2010).

This collection of the Assam Kukri Snake, *Oligodon catenatus*, from Tam Dil National Wetland is the first record for Mizoram State, and constitutes only the second specimen from India (Fig. 3), since no other specimen has been reported from India after the description of this species in 1854. The holotype had apparently disappeared before the collections of the Asiatic Society were transferred to the Indian Museum (Sclater 1891). The present specimen was collected from an altitude of 760 m asl, which is in the ranges reported by Zhao et al. (1998) and Gong et al. (2007). The present specimen, MZMU 1446, represents the only known specimen for India. The fact that no other specimen has been found in India in over 165 years may be due to the scarcity of surveys and/or population declines due to habitat defragmentation.

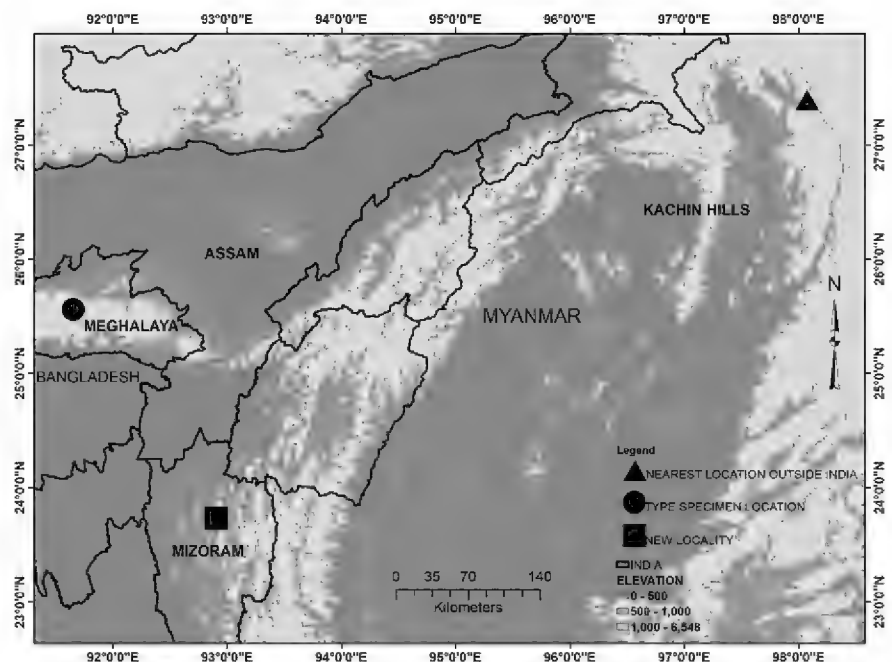


Fig. 3. Map showing the type locality of *Oligodon catenatus* in Khasi Hills, India (solid dark circle); the nearest locality outside India in Kachin Hills, Myanmar (solid dark triangle); and the new locality in Mizoram, India (solid dark square).

The collection site (Fig. 4) is a wetland that is covered by the Natural Wetland Conservation Programme 2006–2007 of the Government of India, in which an area of 285 ha is protected for wetland functions (Anon 2007). It is surrounded by tropical evergreen and moist deciduous forest dominated by *Schima wallichii*, *Chukrasia tabularis*, *Gmelina arborea*, *Artocarpus* sp., *Dendrocalamus* sp., *Albizia* sp., *Morus* sp., and others. From this wetland, new state reports of *Protobothrops mucrosquamatus* (Lalremsanga et al. 2017) and *Leptolalax tamdil* (Sengupta et al. 2010) were recently described. This location is an important tourist attraction and a holiday resort.

Acknowledgements.—We acknowledge DST-SERB, New Delhi, Government of India for financial support under EMR number EMR/2016/002391, and are grateful to the Dean, School of Life Sciences, Mizoram University, for providing the facilities necessary for the research reported here. We thank Lalremsanga, Lalmuansanga, H. Laltlanchhuaha, Romalsawma, Michael Vanlalchhuana, H.T. Decemson, Samuel Lallianzela, and Vanlalhrima for their help in the field. Constructive comments for this work, as well as specimen photographs by Annie Lalrawngbawli, Melvin Selvan, and Nilanjan Mukherjee are highly appreciated. The distribution map designed by Binoy Kumar Barman is also acknowledged. The present work is generated under the permission No. A.33011/2/99-CWLW/225 issued by the Chief Wildlife Warden, Environment, Forest, and Climate Change Department, Government of Mizoram, India.

Literature Cited

Angel F. 1927. Liste des reptiles et des batracien rapportés d'Indo-Chine par M.P. Chevey. Description d'une variété nouvelle de *Simotes violaceus* Cantor.

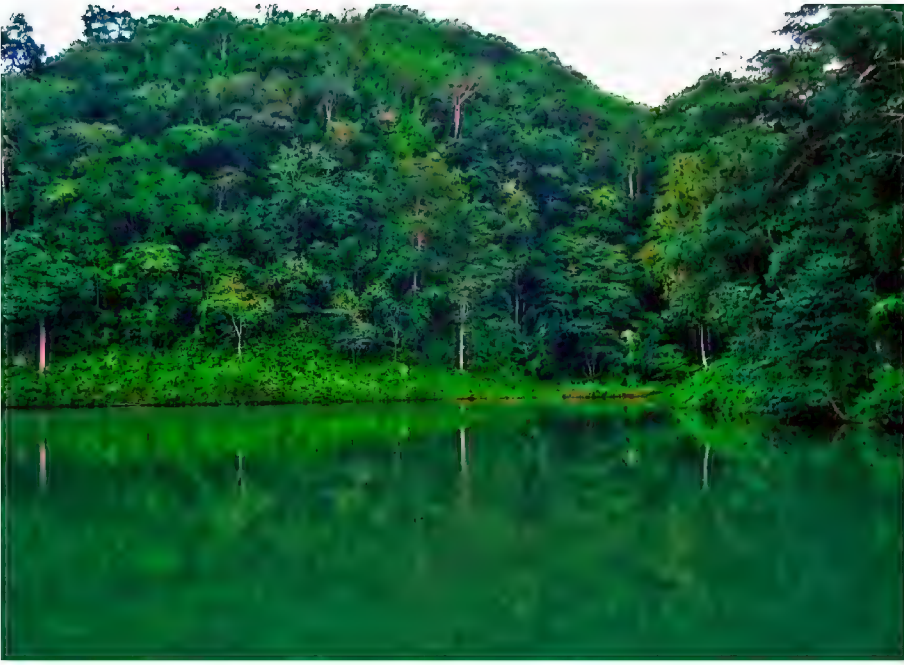
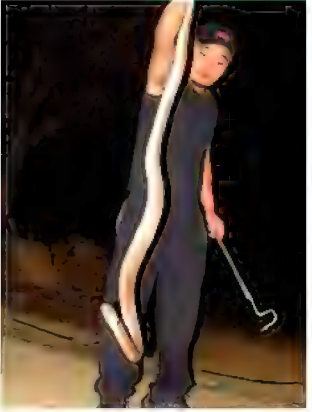


Fig. 4. View of the natural habitats of *Oligodon catenatus* in Tam Dil National Wetland. Photo by H.T. Lalremsanga.

- Bulletin du Muséum national d'histoire naturelle* 33: 496–498.
- Angel F, Bourret R. 1933. Sur une petite collection de serpents du Tonkin. Descriptions d'espèce nouvelles. *Bulletin de la Société zoologique de France* 58: 129–140.
- Anon. 2007. *Conservation of Wetlands in India: a Profile (Approach and Guidelines)*. Conservation Division-1, Ministry of Environment and Forests, Government of India, New Delhi, India. 56 p.
- Blyth E. 1854. Notices and descriptions of various reptiles, new or little known. *The Journal of the Asiatic Society of Bengal* 23(3): 287–302.
- Boulenger GA. 1914. Descriptions of new reptiles from Siam. *The Journal of the Natural History Society of Siam* 1: 67–76.
- Das I. 2010. *A Field Guide to the Reptiles of South-East Asia*. New Holland Publishers (UK) Ltd., London, United Kingdom. 377 p.
- Dowling HG. 1951. A proposed standard system of counting ventrals in snakes. *British Journal of Herpetology* 1: 97–99.
- Gong SP, Markus A, Zhang YY, Zhong GF, Zeng JD. 2007. A new record of *Oligodon catenatus* in Guangdong Province, China. *Chinese Journal of Zoology* 42(6): 149–150.
- Green MD. 2010. Molecular phylogeny of the snake genus *Oligodon* (Serpentes: Colubridae), with an annotated checklist and key. M.S. Thesis, Department of Ecology and Evolutionary Biology, University of Toronto, Toronto, Ontario, Canada. 169 p.
- Lalremsanga HT, Sailo S, Chinliansiam. 2011. Diversity of snakes (Reptilia: Squamata) and role of environmental factors in their distribution in Mizoram, Northeast India. Pp. 265–268 In: *Advances in Environmental Chemistry, September 2018*.
- Lalremsanga HT, Lalbiakzuala, Lalrinsanga. 2017. Geographic distribution: *Protobothrops mucrosquamatus* (Brown Spotted Pitviper). *Herpetological Review* 48(1): 131.
- Leviton AE. 1953. A new snake of the genus *Oligodon* from Annam. *Journal of the Washington Academy of Sciences* 43(12): 422–424.
- Mathew R. 2007. Reptilia. Pp. 545–577 In: *Fauna of Mizoram*. Records of the Zoological Survey of India, State Fauna Series, 14. Zoological Survey of India, Kolkata, India. 691 p.
- Pauwels OSG, Wallach V, David P, Chanhom L. 2002. A new species of *Oligodon* (Serpentes, Colubridae) from southern peninsular Thailand. *Natural History Journal of Chulalongkorn University* 2(2): 7–18.
- Pham AV, Nguyen SLH, Nguyen TQ. 2014. New records of snakes (Squamata: Serpentes) from Son La Province, Vietnam. *Herpetology Notes* 7: 771–777.
- Sclater WL. 1891. Notes on a collection of snakes in the Indian Museum, with descriptions of several new species. *The Journal of the Asiatic Society of Bengal* LX: 230–250.
- Sengupta S, Sailo S, Lalremsanga HT, Das A, Das I. 2010. A new species of *Leptolalax* (Anura: Megophryidae) from Mizoram, North-eastern India. *Zootaxa* 2406: 57–68.
- Sharma V. 2019. Assam Kukri Snake (*Oligodon catenatus* Blyth 1854). Available: <http://indiansnakes.org/content/assam-kukri-snake> [Accessed: 24 July 2019].
- Smith MA. 1943. *The Fauna of British India, Ceylon and Burma including the Whole of the Indo-Chinese Sub-region, Reptilia and Amphibia. Volume 3 Serpentes*. Taylor and Francis, London, United Kingdom. 583 p.
- Thy N, Nguyen TQ. 2012. *Oligodon eberhardti*. The IUCN Red List of Threatened Species 2012: e.T191932A2017150.
- Uetz P, Freed P, Hosek J. (Editors). 2018. The Reptile Database. Available: <http://www.reptile-database.org> [Accessed: 23 July 2019].
- Vassilieva AB. 2015. A new species of the genus *Oligodon* Fitzinger, 1826 (Squamata: Colubridae) from coastal southern Vietnam. *Zootaxa* 4058(2): 211–226.
- Zhao EM. 2006a. *The Snakes of China. Volume I*. Anhui Science and Technology Publishing House, Hefei, China. 372 p. [in Chinese].
- Zhao EM. 2006b. *The Snakes of China. Volume II*. Anhui Science and Technology Publishing House, Hefei, China. 280 p. [in Chinese].
- Zhao EM, Huang MH, Zong Y. 1998. *Fauna Sinica: Reptilia, Volume 3. Squamata, Serpentes*. Science Press, Beijing, China. 570 p.
- Ziegler T, Hendrix R, Thanh VN, Vogt M, Forster B, Kien DN. 2007. The diversity of a snake community in a karst forest ecosystem in the central Truong Son, Vietnam, with an identification key. *Zootaxa* 1493: 1–40.



Lalbiakzuala is a Ph.D. scholar under the supervision of H.T. Lalremsanga in the Department of Zoology, Mizoram University, India. Lalbiakzuala completed his M.Phil. degree in Zoology from Mizoram University, with a thesis on the systematics and natural history of kraits in Mizoram, northeast India. He is currently working as a Project Fellow in a DST-SERB Project on the large-scale DNA barcoding of snakes in Mizoram, in the Indo-Myanmar Biodiversity Hotspot.



H.T. Lalremsanga is a northeast Indian zoologist, whose Ph.D. work in amphibian biology was completed at North Eastern Hill University (Shillong, Meghalaya, India) in 2011. He is now working as an Associate Professor and Head of the Department of Zoology, Mizoram University (Aizawl, Mizoram, India), and has described new species of frogs, eels, and snakes, and a new genus of snake. He is interested in the systematics and biology of amphibians and reptiles, and has established the Developmental Biology and Herpetology Lab in which he guides his graduate students.